

IN THE CLAIMS

What is claimed is:

1. A system for enabling one or more arbitrary components to communicate with each other, the system comprising:

5 a first component associated with one or more universal interfaces;
and

a second component obtaining one of the one or more universal interfaces associated with the first component and invoking the at least one of the universal interfaces to communicate with the first component.

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2. The system as set forth in claim 1 wherein the first component transfers a data object to the second component, the data object having the one or more universal interfaces.

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3. The system as set forth in claim 1 wherein the first component transfers a data object to the second component, the data object having instructions and data for accessing the one or more universal interfaces.

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4. The system as set forth in claim 1 wherein the second component has instructions and data for accessing a data object, the data object having the one or more universal interfaces.

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5. The system as set forth in claim 1 wherein the second component interacts with an operating system environment, the operating system environment having instructions and data for accessing a data object having the one or more universal interfaces.

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6. The system as set forth in claim 1 wherein the second component has instructions and data for using the one or more universal interfaces.

7. The system as set forth in claim 1 wherein a third component transfers a data object to the second component, the data object having the one or more universal interfaces associated with the first component.

5 8. The system as set forth in claim 1 wherein the one or more universal interfaces comprise a data source interface, a data sink interface, an aggregation interface, a mutable aggregation interface, a context interface, a notification interface or a user interface.

10 9. The system as set forth in claim 1 wherein the one or more universal interfaces comprise object-oriented mobile code having instructions for obtaining, interpreting, viewing or modifying data associated with one or more collections of components, providing one or more user interfaces to allow one or more components to be accessed or manipulated, allowing one or more
15 components to provide event notifications or retrieving contextual data associated with the second component.

10 10. The system as set forth in claim 1 wherein one of the one or more universal interfaces comprise a source-specific data transfer session having instructions for converting data transferred through the source-specific data transfer session.

25 11. The system as set forth in claim 1 wherein the one or more arbitrary components comprise a computer system, device, network service, application, data, memory, file directory or individual file.

30 12. A method for enabling one or more arbitrary components to communicate with each other, the method comprising:
obtaining one of one or more universal interfaces associated with a first component; and

invoking at least one of the universal interfaces to communicate with the first component.

13. The method as set forth in claim 12 further comprising transferring
5 a data object to a second component, the data object having the one or more universal interfaces.

14. The method as set forth in claim 12 further comprising transferring
10 a data object to a second component, the data object having instructions and data for enabling the second component to use the one or more universal interfaces.

15. The method as set forth in claim 12 further comprising transferring
15 a data object to a second component, the second component having instructions and data for enabling it to use the one or more universal interfaces.

16. The method as set forth in claim 12 wherein a second component
20 interacts with an operating system environment, the operating system environment having instructions and data for enabling the second component to use the one or more universal interfaces.

17. The method as set forth in claim 12 wherein a second component
performs instructions for using the one or more universal interfaces.

18. The method as set forth in claim 12 wherein a third component
25 transfers a data object to a second component, the data object having the one or more universal interfaces associated with the first component.

19. The method as set forth in claim 12 wherein the one or more
30 universal interfaces comprise a data source interface, a data sink interface, an aggregation interface, a mutable aggregation interface, a context interface, a notification interface or a user interface.

20. The method as set forth in claim 12 wherein the one or more universal interfaces comprise object-oriented mobile code having instructions for obtaining, interpreting, viewing or modifying obtaining, viewing or modifying data associated with a collection of components, providing an interface to allow requested components to be accessed or manipulated directly, allowing requested components to provide the one or more other components with status updates of the requested components or retrieving contextual data associated with the second component.

21. The method as set forth in claim 12 wherein one of the one or more universal interfaces comprise a source-specific data transfer session having instructions for converting data transferred through the source-specific data transfer session.

22. The method as set forth in claim 12 wherein the one or more arbitrary components comprise a device, network service, application, data, memory, file directory or individual file.

23. A computer readable medium having stored thereon instructions for enabling one or more arbitrary components to communicate with each other, which when executed by one or more processors, causes the processors to perform:

obtaining one of one or more universal interfaces associated with a first component; and

invoking at least one of the universal interface to communicate with the first component.

24. The medium as set forth in claim 23 further comprising transferring a data object to a second component, the data object having the one or more universal interfaces.

25. The medium as set forth in claim 23 further comprising transferring a data object to a second component, the data object having instructions and data for enabling the second component to use the one or more universal interfaces.

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26. The medium as set forth in claim 23 further comprising transferring a data object to a second component, the second component having instructions and data for enabling it to use the one or more universal interfaces.

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27. The medium as set forth in claim 23 wherein a second component interacts with an operating system environment, the operating system environment having instructions and data for enabling the second component to use the one or more universal interfaces.

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28. The medium as set forth in claim 23 wherein a second component performs instructions for using the one or more universal interfaces.

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29. The medium as set forth in claim 23 wherein a third component transfers a data object to a second component, the data object having the one or more universal interfaces associated with the first component.

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30. The medium as set forth in claim 23 wherein the one or more universal interfaces comprise a data source interface, a data sink interface, an aggregation interface, a mutable aggregation interface, a context interface, a notification interface or a user interface.

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31. The medium as set forth in claim 23 wherein the one or more universal interfaces comprise object-oriented mobile code having instructions for obtaining, interpreting, viewing or modifying obtaining, viewing or modifying data associated with a collection of components, providing an interface to allow requested components to be accessed or manipulated directly, allowing requested

components to provide the one or more other components with status updates of the requested components or retrieving contextual data associated with the second component.

5 32. The medium as set forth in claim 23 wherein one of the one or more universal interfaces comprise a source-specific data transfer session having instructions for converting data transferred through the source-specific data transfer session.

10 33. The medium as set forth in claim 23 wherein the one or more arbitrary components comprise a device, network service, application, data, memory, file directory or individual file.

15 34. A computer data signal embodied in a carrier wave for enabling one or more arbitrary components to communicate with each other, the signal comprising:

 a first source code segment having instructions for causing a first component to obtain one of one or more universal interfaces associated with a second component; and

20 a second source code segment having instructions for causing the first component to invoke at least one of the universal interfaces to communicate with the second component.

25 35. The signal as set forth in claim 34 further comprising transferring a data object to a second component, the data object having the one or more universal interfaces.

30 36. The signal as set forth in claim 34 further comprising transferring a data object to a second component, the data object having instructions and data for enabling the second component to use the one or more universal interfaces.

37. The signal as set forth in claim 34 further comprising transferring a data object to a second component, the second component having instructions and data for enabling it to use the one or more universal interfaces.

38. The signal as set forth in claim 34 wherein a second component interacts with an operating system environment, the operating system environment having instructions and data for enabling the second component to use the one or more universal interfaces.

39. The signal as set forth in claim 34 wherein a second component performs instructions for using the one or more universal interfaces.

40. The signal as set forth in claim 34 wherein a third component transfers a data object to a second component, the data object having the one or more universal interfaces associated with the first component.

41. The signal as set forth in claim 34 wherein the one or more universal interfaces comprise a data source interface, a data sink interface, an aggregation interface, a mutable aggregation interface, a context interface, a notification interface or a user interface.

42. The signal as set forth in claim 34 wherein the one or more universal interfaces comprise object-oriented mobile code having instructions for obtaining, interpreting, viewing or modifying obtaining, viewing or modifying data associated with a collection of components, providing an interface to allow requested components to be accessed or manipulated directly, allowing requested components to provide the one or more other components with status updates of the requested components or retrieving contextual data associated with the second component.

43. The signal as set forth in claim 34 wherein one of the one or more universal interfaces comprise a source-specific data transfer session having instructions for converting data transferred through the source-specific data transfer session.

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44. The signal as set forth in claim 34 wherein the one or more arbitrary components comprise a device, network service, application, data, memory, file directory or individual file.

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